



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,351	03/24/2004	Akihito Kusano	1033498-000024	5379

21839 7590 09/27/2007
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

BURCH, MELODY M

ART UNIT	PAPER NUMBER
----------	--------------

3683

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

09/27/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com
debra.hawkins@bipc.com

Office Action Summary	Application No. 10/807,351	Applicant(s) KUSANO ET AL.	
	Examiner Melody M. Burch	Art Unit 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/23/07, 9/4/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/23/07</u> . | 6) <input type="checkbox"/> Other: _____ |

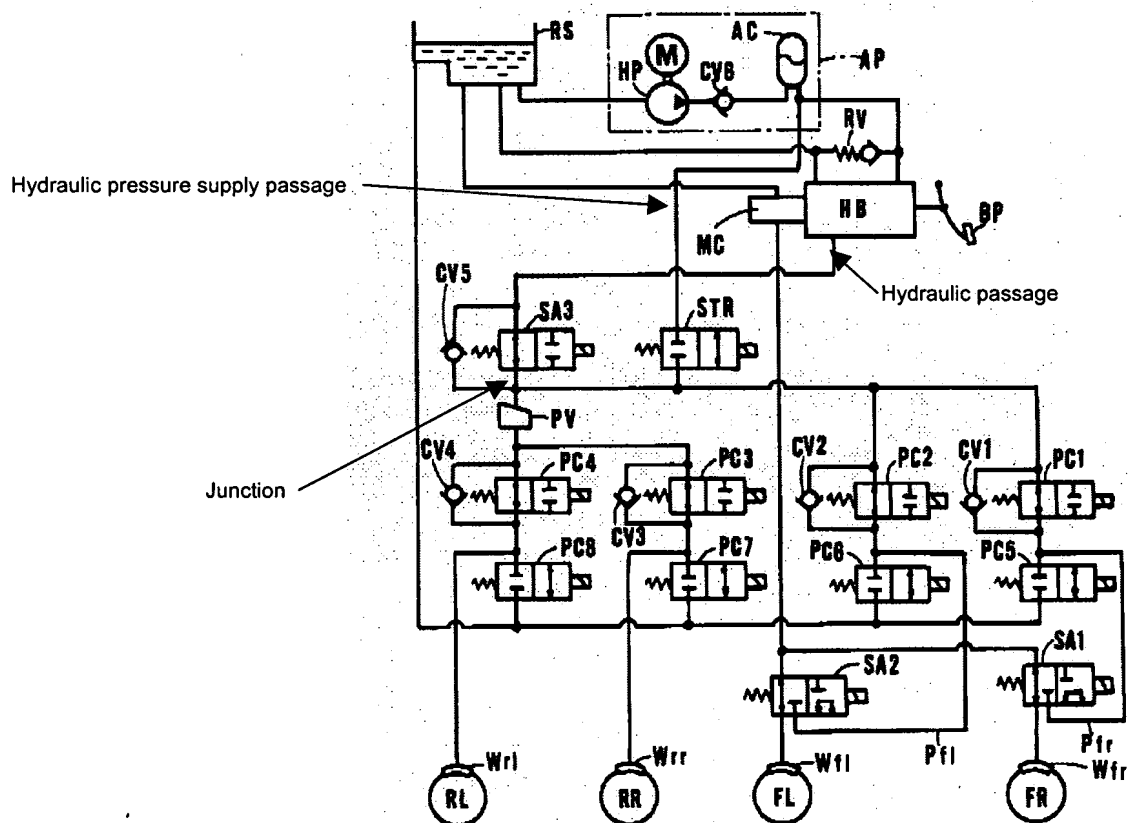
Art Unit: 3683

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6078858 to Tozu et al. in view of US Patent 5048292 to Kubik.

FIG. 3

Re: claim 1. Tozu et al. show in figure 3 a vehicle hydraulic brake device comprising a hydraulic pressure source AP for generating and outputting a predetermined hydraulic pressure, a pressure adjusting valve HB,MC including a pressure adjusting mechanism for adjusting the output hydraulic pressure of the hydraulic pressure source to a value corresponding to a brake operating amount and wheel cylinders Wrl-Wfr actuated by the output hydraulic pressure of the pressure adjusting valve for imparting braking force to wheels of the vehicle, further comprising a hydraulic passage as labeled, a hydraulic pressure supply passage as labeled for supplying hydraulic pressure from the hydraulic pressure source to the hydraulic passage at a junction therewith, the hydraulic pressure supply passage by-passing the pressure adjusting mechanism of the pressure adjusting valve as shown, a first solenoid valve STR provided in the hydraulic pressure supply passage for reducing the output hydraulic pressure of the hydraulic pressure source and supplying it to the hydraulic passage leading from the pressure adjusting valve to the wheel cylinders, a second solenoid valve SA3 provided in the hydraulic passage at a location between the pressure adjusting valve and the junction and operable for reducing the output hydraulic pressure supplied from the hydraulic pressure supply passage, a check valve CV5 provided parallel to the second solenoid valve and allowing fluid flow from the pressure adjusting valve toward the hydraulic pressure supply passage and a controller ECU for controlling operations of the first and second solenoid valves, wherein control of the hydraulic pressure supplied to the wheel cylinders during automatic brake control is performed by operating the first solenoid valve to increase the hydraulic pressure in the

Art Unit: 3683

wheel cylinders as disclosed in col. 8 lines 36-50 and by operating the second valve to decrease the hydraulic pressure in the wheel cylinders as disclosed in col. 7 lines 48-53 and col. 7 line 66 – col. 8 line 2, and wherein when the output hydraulic pressure of the pressure adjusting valve exceeds the hydraulic pressure in the wheel cylinders in response to operation of the brake operating member during the automatic brake control, the output hydraulic pressure of the pressure adjusting valve is supplied into the wheel cylinders through the check valve as disclosed in col. 8 lines 5-10.

Tozu et al. are silent with regards to the first and second solenoid valves being proportional valves or specifically of the type in which a differential pressure between upstream hydraulic pressure and downstream hydraulic pressure thereof is controllable to a value corresponding to a control current applied thereto.

Kubik teaches in col. 8 line 62 – col. 9 line 7 the use of substituting a proportional valve for an on-off solenoid valve.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the on-off solenoid valves of Tozu et al. to have included proportional valves, as taught by Kubik, in order to provide a means of controlling the degree of opening of the valve to achieve more dynamic and efficient braking.

Re: claims 2 and 3. See the rejection of claim 1 and, as shown in figure 3 of Tozu et al., a pressure chamber within the element labeled HB, a master cylinder MC inherently including a master piston actuated by the output pressure of the pressure adjusting valve introduced into the pressure chamber since, as broadly claimed, the

Art Unit: 3683

hydraulic pressure of the pressure adjusting valve is circulated throughout the brake device, a solenoid valve PC3 for supplying the output hydraulic pressure of the pressure adjusting valve to a hydraulic system leading from the master cylinder to the wheel cylinder Wrr, a hydraulic pressure supply passage as set forth above connected to a hydraulic passage as set forth above connecting the pressure adjusting valve to the solenoid valve. The hydraulic pressure source includes a power driven pump HP for producing hydraulic pressure and a pressure accumulator AC for accumulating hydraulic pressure produced by the pump.

3. Claims 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tozu et al. in view of Kubik as applied to claims 1-3 above, and further in view of US Patent 6422662 to Haas.

Tozu et al., as modified, lack the limitation of the means for detecting that the output hydraulic pressure of the pressure adjusting valve has become equal to the hydraulic pressure of the hydraulic pressure supply passage, and wherein when it is detected by the means that the output hydraulic pressure of the pressure adjusting valve has become equal to the hydraulic pressure of the hydraulic pressure supply passage, automatic brake control is stopped.

Haas teaches in the abstract, in col. 4 lines 24-44, and in figure 1 the use of a brake device in which a means 107,108,110 for detecting that the output hydraulic pressure of above valve 113 has become equal to the hydraulic pressure of the hydraulic pressure supply passage or the area below valve 113, and wherein when it is detected by the means that the output hydraulic pressure of the pressure adjusting

Art Unit: 3683

valve has become equal to the hydraulic pressure of the hydraulic pressure supply passage or when the pressure at the wheel cylinders is higher than the hydraulic , automatic brake control is stopped.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device of Tozu et al., as modified, to have included means for detecting and comparing the hydraulic pressures, as taught by Haas, in order to provide a means of determining when to trigger pump activation.

Response to Amendment

4. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Information Disclosure Statement

5. The information disclosure statement filed 8/23/07 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. Examiner is referring particularly to reference JP-8-230634. It is noted that the English abstract attached to the reference is for patent JP-8-230624.

Response to Arguments

6. Applicant's arguments, see pg. 4, filed 9/4/07, with respect to the rejection(s) of the claim(s) under 35 USC 103 using the Peterson reference have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the Kubik reference.

7. Applicant's arguments filed 9/4/07 have been fully considered but they are not persuasive with respect to the replacement of the on-off solenoid valves with proportional valves.

Applicant argues that the on-off valves SA3 and STR of Tozu et al. "do not control the hydraulic pressure supplied to the wheel cylinders, but rather are merely opened or closed to deliver hydraulic pressure downstream from different sources, with hydraulic pressure in the wheel cylinders being increased, maintained or decreased through operation of the solenoid valves PC1-PC8." Examiner notes that on-off valves SA3 and STR play a role in controlling the hydraulic pressure supplied to the wheel cylinder by virtue of their opening and closing functions. Examiner further notes that Tozu et al., as modified by Kubik, teach the use of a more dynamic control that adjusts the degree of openness of valves SA3 and STR based on controller signals rather than the use of the more passive on-off control. The fact that solenoid valves PC1-PC8 are also used in the control of hydraulic pressure to the wheel cylinders does not preclude dynamic control of valves SA3 and STR.

Tozu et al., as modified, teach the use of fluid flowing through proportional valves (replacing SA3 and STR with the teachings of Kubik) and then into pressure control solenoid valves PC1-PC8 to the same extent that the instant invention permits fluid to flow through proportional valves 21 and 22 and then into pressure control solenoid valves 17-1 through 17-4 which as described in paragraph [0026] of the instant invention perform pressure increasing functions. In light of Kubik, the new teaching reference, Examiner maintains that it would have been obvious to one of ordinary skill in the art to have modified the on-off solenoid valves SA3 and STR of Tozu et al. with proportional valves, as taught by Kubik, in order to provide more dynamic control of the fluid flow to provide only the amount of fluid flow that is necessary to achieve the required braking (i.e. opening the valve $\frac{3}{4}$ of its maximum opening position instead of opening the valve to its maximum opening position when only a $\frac{3}{4}$ opening is needed to fulfill the braking requirement).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 571-272-7114. The examiner can normally be reached on Monday-Friday (6:30 AM-3:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3683

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

mmb

September 21, 2007

Melody M. Burch
Melody Burch
Primary Examiner
9/21/07